

of Yorkshire,' vol. ii. pl. 5. fig. 5: externally it closely resembles another species which I consider the same as Dr. Morton's fossil represented in Silliman's Journal, vol. xxix. pl. 26. fig. 37, and which is from the carboniferous rocks of Northumberland; but the direction of the cartilage fulcra, as already noticed, is very different in each.

I have little doubt of the fossil to which Mr. J. de C. Sowerby has applied Fleming's name *Unio Urii* (Brit. Animals, p. 417) being quite distinct from the shell so called, and a true *Allorisma*. In this case the specific name which Mr. Sowerby has given to the former may be retained, unless this fossil should hereafter be considered as a variety of *Allorisma elongata*.

XXXVIII.—*Catalogue of Irish Entozoa, with observations.* By O'BRYEN BELLINGHAM, M.D., Fellow of and Professor of Botany to the Royal College of Surgeons in Ireland, Member of the Royal Zoological, Geological and Natural History Societies of Dublin, &c.

[Continued from p. 256.]

Genus 18. TÆNIA.

(Derived from *ταύλα, vitta*.)

Gen. Char.—Body long, flat, soft, and composed of a great number of distinct articulations. Head in general larger than the neck, furnished with two pairs of oscula, suckers or discs, and often with a rostellum or prominence in front, which is surrounded or not by one or two circles of recurved hooks;—what Rudolphi terms 'armed.'

THE species of this genus have been hitherto found in the bodies of vertebral animals alone, and the alimentary canal is the only part which they are found to inhabit; they usually occur in the small intestines. They are most abundant in birds, next in mammalia, then in fish, and lastly in reptiles. Rudolphi enumerates 146 species in his 'Synopsis,' of which 53 are doubtful.

The term *Tænia* was employed by the ancients, but they necessarily confounded the genus *Bothriocephalus* with the *Tænia*. The digestive apparatus of these animals consists of two straight lateral canals of the same diameter throughout, which commence at the oscula of the head, run backwards parallel to one another, close to the margins of the articulations, and communicate with one another by a transverse branch at the posterior edge of each articulation.

The organs of reproduction are more complicated; we find male and female organs not only in every individual, but in all the larger articulations of the same individual. A small papillary projection is seen near the centre of the margin of each articu-

lation, in which is the orifice of a duct leading to the ovary. The latter organ occupies the middle of each articulation, and consists of a central canal, which is often filled with ova, and of branches proceeding from its sides. In addition, a slender dark-coloured body is seen, which extends from the marginal orifice inwards towards the centre of the articulation, where it ends in a small oval vesicle; this is considered to be the male organ by which the ova, as they pass through the marginal orifices, are impregnated.

The organs of locomotion in the *Tenia* consist of transverse and longitudinal layers of muscular fibres; the latter are not continued from one articulation to another, as in the genus *Bothrioccephalus*, in consequence of which the articulations are readily detached, and each joint when separated from the others enjoys some power of motion. No distinct organs of circulation exist in the *Tenia*, and nothing like a distinct nervous system has yet been observed in them.

Rudolphi has arranged the species of this genus in two great divisions: in one the head is armed with a circle of very minute recurved hooks; in the other this part is naked or unarmed. The latter are further subdivided as the head is provided with a rostellum or prominence in front, or as this is absent.

A. INERMES.

a. *Capite simplici, non rostellato.*

1. $\left\{ \begin{array}{l} \textit{Tenia expansa} \dots\dots\dots \\ \text{---} \textit{ovina} \text{ (Linn., Turt.)} \end{array} \right\}$ Small intestine of sheep (*Ovis Aries*).
2. *Tenia pectinata* * $\dots\dots\dots \left\{ \begin{array}{l} \text{Small intestine of rabbit (} \textit{Lepus} \\ \textit{Cuniculus} \text{)} \end{array} \right\}$.

* The *Tenia pectinata* is included in Turton's list of British species, and is very well named, as its serrated margins present the appearance of a comb. I have found it in the wild rabbit upwards of 18 inches in length. Its colour before being immersed in spirits of wine is reddish; the head is not small (as Rudolphi describes it), but is larger in proportion than that of the *Tenia lanceolata*, to which it has some general resemblance. The oscula are round and directed forwards; the articulations nearest the head are very short; they gradually increase in length, but all are broader than long; the posterior articulations are very thick and have somewhat a fleshy appearance. The marginal orifices are best seen in the articulations near the head; they are opposite, and a short filament projects from each, which assists in giving the margin the pectinated appearance; in the most posterior articulations the filaments do not project. The ova are exceedingly numerous, globular, and of a white colour; they are so minute as to be scarcely distinguishable with the naked eye.

3. *Tænia lanceolata* { Small intestine of pochard (*Fuligula ferina*).
4. { *Tænia cucumerina* { Small intestine of dog (*Canis familiaris*).
- { — *cateniformis* (Penn.) {
5. *Tænia flicollis** . . { Intestine of three-spined stickleback (*Gasterosteus aculeatus*).
6. — *nasuta* † Intestine of blue titmouse (*Parus cæruleus*).

b. *Rostellatæ*; *capitis rostello retractili inermi*.

7. *Tænia spherophora*. { Small intestine of curlew (*Numenius arquata*).
8. — *levigata* { Small intestine of plover (*Charadrius Hiaticula*).
9. — *cyathiformis* . . Small intestine of swift (*Cypselus Apus*).
10. *Tænia infundibuliformis* ‡ { Small intestine of wild duck (*Anas Boschas*).
- { Small intestine of tame duck (*Anas Boschas domest.*).
- { Small intestine of domestic fowl (*Gallus domesticus*).
- { Small intestine of sparrow (*Fringilla domestica*).

* In the month of July 1839 I found several specimens of the *Tænia flicollis* in the intestines of the *Gasterosteus aculeatus*; they lived for some time in water, and soon discharged an immense number of ova. In one specimen I saw the ova protruded from the marginal pore in a continuous stream and with great force. The ova are very small, white and spherical, but visible to the naked eye.

The oscula of the head are distinct; when the animal is alive and in motion, there is little distinction between the head and neck, and this part is continually altering its shape. The articulations of the body are thinner at their margins than in the centre, which gives this part a fringed appearance. The last articulation terminates in a remarkable conical point.

† Upon one occasion I found eight specimens of the *Tænia nasuta* in the intestinal canal near its termination of the common blue titmouse (*Parus cæruleus*). The longest measured 2 inches in length. In some of the specimens the head appeared to be provided with a rostellum; hence the species should perhaps rather come under the second division in Rudolphi's arrangement. The neck is distinct; the articulations are as described by Rudolphi.

‡ The *Tænia infundibuliformis* from the small intestine of the wild duck (*Anas Boschas*) is about an inch in length; the head has somewhat a different shape when recent from what it has after lying in spirits of wine; it is triangular, the oscula being elongated and giving it somewhat the appearance of a *Bothriocephalus*. The neck is very short; the rostellum cylindrical, as long as the head and neck together, obtuse, and nearly double their thickness at its extremity. The rostellum of several, after lying in spirits of wine, became much contracted.

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| 11. <i>Tania setigera</i> * | { | Small intestine of swan (<i>Cygnus Olor</i>). |
| | | Small intestine of goose (<i>Anas Anser</i>). |
| 12. — <i>platycephala</i> . | { | Small intestine of redbreast (<i>Sylvia Rubecula</i>). |
| 13. — <i>angulata</i> .. | { | Small intestine of thrush (<i>Turdus musicus</i>). |
| | | Small intestine of blackbird (<i>Turdus Merula</i>). |
| 14. — <i>lævis</i> | { | Small intestine of fieldfare (<i>Turdus pilaris</i>). |
| | | Small intestine of pochard (<i>Fuligula ferina</i>). |
| | | Small intestine of scaup-duck (<i>Fuligula Marila</i>). |
| 15. — <i>æquabilis</i> .. | { | Intestine of tufted duck (<i>Fuligula cristata</i>). |
| | | Small intestine of wild swan (<i>Cygnus ferus</i>). |
| | | Small intestine of widgeon (<i>Mareca Penelope</i>). |
| 16. — <i>tenuirostris</i> .. | { | Small intestine of tufted duck (<i>Fuligula cristata</i>). |
| | | Small intestine of goosander (<i>Mergus Merganser</i>). |
| 17. — <i>Filum</i> | { | Small and large intestine of ruff (<i>Tringa pugnax</i>). |
| 18. { <i>Tania elliptica</i> † | } | Small intestine of cat (<i>Felis maniculata</i>). |
| — <i>cateniformis</i> (Pennant) .. | | |
| 19. <i>Tania gracilis</i> | | Large intestine of wild duck (<i>Anas Boschas</i>). |
| 20. — <i>pusilla</i> ? † .. | | Small intestine of mouse (<i>Mus Musculus</i>). |
| 21. — <i>farciminalis</i> . | | Small intestine of starling (<i>Sturnus vulgaris</i>). |

* In the specimens of the *Tania setigera* from the small intestines of the goose (*Anas Anser*) which I have examined, the pyriform rostellum sometimes projected, at others it did not. All the articulations are very short, though Rudolphi describes those in the middle of the body to be infundibuliform.

† The *Tania elliptica* is common in the small intestines of the domestic cat; they are usually found towards the extremity of the small intestine near the large. On some occasions I have found them so firmly attached to the mucous membrane of the intestine by their oscula that they could not be detached, but separated at the articulations near the head.

‡ This species, which has several of the characters of the *Tania pusilla*, inhabits the small intestine of the mouse; it is about an inch and a half in length, dark-coloured when first removed from the animal, becoming white after remaining in water. The rostellum is short, the oscula distinct, head oval; anterior articulations very short, the next broader than long, the last oblong; each anterior articulation overlaps that next to it, which gives the joints the appearance of being double and composed of a narrow and a broad portion. The marginal pores are irregularly alternate, and lemnisci projected from many of them.

28. *Tænia porosa*?* . . { Small intestine of herring-gull (*Larus argentatus*).

Species dubiæ.

29. *Tænia* †. Small intestine of wild cat (*Felis Catus*).
 30. ——— † . Small intestine of rat (*Mus decumanus*).
 31. ——— § . Small intestine of thrush (*Turdus musicus*).
 32. ——— || . Small intestine of thrush (*Turdus musicus*).

* Upon two occasions I found specimens of *Tænia* which had the characters of the *Tænia porosa*, firmly attached together as if *in coitu*, the lemnisci of one being inserted into the lateral pores of the other. Hence this species cannot be truly hermaphrodite, as the majority of *Tæniæ* are believed to be.

† In the month of March 1837 I found a single specimen of a *Tænia* in the duodenum of a wild cat (*Felis Catus*) taken in the north of Ireland, which appears to be undescribed. The neck is long; the body dark-coloured when first removed from the animal; the four oscula appeared to the naked eye like four circular spots; the disc of cilia was prominent and white. It most nearly resembled the *Tænia crassicollis*, which is common in the domestic cat, but it differed in several respects from it.

‡ Upon several occasions I have found in the small intestines of the rat (*Mus decumanus*) a species of *Tænia* which differs from those described by Rudolphi as occurring in this animal, and comes nearest the description of a species mentioned by Creplin under the name *Tænia muris ratti*. It belongs to the division 'Inermes' in Rudolphi's arrangement, and to the subdivision 'Rostellatæ.' The length is from three to four and a half inches; colour white; body filiform anteriorly; head small, subglobose; in some apparently not separated from the body by any narrower portion or neck, in others this part is seen and is very short. Rostellum unarmed, cylindrical and very short; oscula round and slightly prominent; anterior articulations indistinct, those next exceedingly short, almost linear, and increasing gradually in length, their angles acute; marginal orifices not conspicuous.

§ Upon one occasion I met with several specimens of an undescribed species of *Tænia* in the small intestine near the gizzard of a thrush (*Turdus musicus*). It belongs to the division 'Armata' in Rudolphi's arrangement: the length is about 2 inches; the head small, and with the rostellum has a triangular shape; the oscula are large and conspicuous; the rostellum very short, cylindrical, thick, and armed with minute spines. The body anteriorly is as fine as a thread, and is but little broader posteriorly; the anterior articulations are short; the next longer than broad, somewhat funnel-shaped; the most posterior are broader than long, and rather elliptical than infundibuliform.

|| This species of *Tænia* occurred in the small intestine near the large of the thrush, and differs in several respects from the preceding; it belongs however to the same division in Rudolphi's arrange-

33. *Tænia* *. Small intestine of domestic fowl (*Gallus domesticus*).
 34. — .. Small intestine of grouse (*Tetrao Scoticus*).
 35. — .. { Small intestine of oyster-catcher (*Hæmatopus Ostralegus*).
 36. — .. { Small intestine of curlew (*Numenius arquata*).
 37. — .. { Small intestine of godwit (*Limosa rufa*).
 38. — .. { Small intestine of snipe (*Scolopax Gallinago*).
 39. — .. { Small intestine of corn-crake (*Crex pratensis*).
 40. — .. { Small intestine of tame swan (*Cygnus Olor*).
 41. — .. { Small intestine of shieldrake (*Tadorna Bellonii*).
 42. — †. Small and large intestine of pochard (*Fuligula ferina*).
 43. — .. { Small intestine of red-breasted merganser (*Mergus Serrator*).
 44. — .. { Small intestine of crested grebe (*Podiceps cristatus*).
 45. — .. { Small intestine of red-necked grebe (*Podiceps rubricollis*).
 46. — .. Small intestine of northern diver (*Colymbus glacialis*).
 47. — .. Small intestine of razor-bill (*Alca Torda*).
 48. — .. Small intestine of roseate tern (*Sterna Dougallii*).
 49. — .. Small intestine of gull (*Larus Canus*).
 50. — .. Small intestine of kittiwake (*Larus tridactylus*).
 51. — .. Intestine of loach (*Cobitis barbatula*).

ment. Their length varies from one line to an inch and a half; the head is large and distinct; the four oscula are also distinct; the rostellum is very short, thick and clavate, armed with distinct spines. The larger specimens are provided with a neck, which is not seen in the smaller. The articulations next the neck are merely transverse rugæ, and about the same width as the head; posteriorly they increase in length, but still their transverse diameter always exceeds the antero-posterior; the terminal articulation is short.

* Upon one occasion I found this undescribed species of *Tænia* in such numbers in the duodenum of a chicken only three weeks old, that this part of the intestinal tube was completely blocked up and obstructed by them,—some projected even into the gizzard.

† In the month of January 1839 I found an immense number of *Tæniæ* in the small intestine of the pochard (*Fuligula ferina*), many of which were attached to the mucous membrane: they belong to the division '*Inermes*' and to the subdivision '*Rostellatæ*.' The head is small, subhemispherical; rostellum pyriform, about half the length of the head; oscula large and deep. The anterior articulations vary in shape, sometimes being irregularly oval, the long diameter transversely; the succeeding articulations are exceedingly short, resembling rather transverse rugæ, and those near the posterior extremity are also very short.